

# Portable Desiccant Dehydrators



Partner Reported Opportunities (PROs)  
for Reducing Methane Emissions

## PRO Fact Sheet No. 207

### Applicable sector(s):

☒ Production ☐ Processing ☐ Transmission and Distribution

**Partners reporting this PRO:** Pioneer Natural Resources

**Other related PROs:** Replace Glycol Dehydration Units with Methanol Injection, Green Completions

Compressors/Engines ☐  
Dehydrators ☒  
Pipelines ☐  
Pneumatics/Controls ☐  
Tanks ☐  
Valves ☐  
Wells ☐  
Other ☐

### Technology/Practice Overview

#### Description

Maintenance of glycol dehydrators often requires a complete shutdown of the unit during the service period. During this maintenance, production wells can either be shut in or vented to the atmosphere. Low pressure wells are often vented because it can be difficult to resume flow once they are shut in. Portable desiccant dehydrators can be used in place of the glycol dehydrator during maintenance so that production is not interrupted and methane is not vented.

Portable desiccant dehydrators can also be used to support green completions. During well completions and workovers gas is often vented to clean up the well-bore and surrounding reservoir. Green completions can include either glycol or desiccant dehydrators that are brought on site to capture the vented gas and send it to the sales line.

#### Operating Requirements

A portable desiccant dehydrator requires a truck that has been modified to house the dehydrator itself as well as carry other ancillary equipment and piping.

#### Applicability

Portable desiccant dehydrators can be used in situations where a large amount of gas would otherwise be vented during well completions or glycol dehydrator maintenance.

### Methane Emission Reductions

The methane emission savings are based on routing gas from an average gas stripper well to a portable desiccant dehydrator rather than venting the gas while maintenance is conducted on the glycol dehydrator.

### Methane Savings: 1,891 Mcf/yr average per application

#### Costs

Capital Costs (including installation)

☐ <\$1,000 ☒ \$1,000 – \$10,000 ☐ >\$10,000

Operating and Maintenance Costs (annual)

☐ <\$100 ☐ \$100-\$1,000 ☒ >\$1,000

#### Payback (Years)

☐ 0–1 ☒ 1–3 ☐ 3–10 ☐ >10

#### Benefits

The primary benefit of portable desiccant dehydrators is saleable gas savings from recovering rather than venting gas during glycol dehydrator maintenance.



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## Economic Analysis

### Basis for Costs and Savings

Methane savings are based on 40 one-week applications on gas wells that vent 30 Mcf/d (thousand cubic feet per day). Portable desiccant dehydrator are economical when used on gas wells larger than the average (15.6 Mcf/d) gas stripper well. Set-up and removal of the portable desiccant dehydrator is assumed to take three days each, meaning it is only in operation for a two day glycol dehydrator maintenance period. The methane content of the gas is assumed to be 78.8%. The capital cost of a 10 inch portable desiccant dehydrator is estimated at over \$4,000, or greater than \$400 per year amortized over a 10 year period. Operation costs of the desiccant dehydrator, including labor, transportation, set-up, and decommissioning, can range up to \$5,000 per year.

### Discussion

A portable desiccant dehydrator is most economic when it can be operated year round on a number of different sites that may require maintenance. Portable desiccant dehydrator services may be contracted out so that the dehydrator is utilized year round if a production company does not have enough locations for continuous use.